

way for settlement. But, to those who know, the modern cultivated forest is very different. It yields more timber, and its uses "for the healing of the nations" are manifold and of the first importance. The nearer it comes to our doors, the better for us; and happily also the better for the cultivated forest. The wild forest is generally a distant business, not entering into the daily life of the people, a life which the forest can so enrich and enlarge.

The avowed object of the Development Commission when instituted was "to apply State methods long proved successful in other countries and in the Colonies to the development" of these islands. But the Development Commissioners have now formally stated that their *general policy is adverse to State forestry* (Report for period ending March 31, 1911). No reasons are given for the adoption of a decision so strangely at variance with the rest of the civilised world. Germany spends 7,000,000*l.* a year on State forestry. The Prussian Forest Department between 1867 and 1892 acquired 329,850 acres of waste land for re-forestation at a cost of about 1,125,000*l.*, besides granting substantial bounties for planting to private landowners, and giving in one year (1893) about 32,000,000 young trees for planting to private owners of woodlands (Dr. Nisbet). France, with a much smaller forest area, spends half a million yearly on State forestry.

Every country in Europe has its State forests in a more or less advanced condition of development. Most instructive, in this respect, is the excellent forest work of Japan. With a cool head and free hands, unfettered by the traditions of Western Europe, it has calmly appropriated what is good in Western civilisation and rejected the bad. Japan adopted State forestry in the earliest days of its civilisation. It is now spending more than 250,000*l.* yearly on its State forests, and it has some 100 million young trees in its State forest nurseries. The returns show an average of sixty-two million trees planted yearly in the State forests! There are free grants of trees and subsidies for private tree-planting. Instruction in forestry permeates the whole educational system, from the universities to the village schools.

Writing as one who has borne a prominent share in one of the largest works of constructive forestry in recent times, I say without hesitation, let the Development Commissioners frankly accept State forestry and do as the rest of the world. If, thirty years ago, Cape Colony had hesitated at practical State forestry it would not occupy the position it does now.

Cape Colony (now under Union the Cape Province) has spent considerably more than 1,000,000*l.* on its forestry, and it is now producing, within its own borders, the greater portion of the timber imported from abroad at a cost of between 300,000*l.* and 400,000*l.* yearly. Cape Colony has wisely held that it is too poor a country to go on paying out this large sum yearly for imported timber.

Though so little has yet been done for practical forestry in Britain, the Irishman has made his voice heard with the happiest results! He has established an epoch in the history of British forestry with the decision of the Development Commission that "State afforestation on a small scale may be started in Ireland immediately." According to the last returns that have reached me, there has actually been acquired for forest purposes in Ireland an area of more than 7000 acres.

It is a serious reflection that Great Britain, year after year, is spending some twenty-five million pounds sterling on imported timber and forest products, a considerable portion of which could be grown on the waste lands of these islands.

Sir William Schlich, in one of his admirable pub-

lications on British forestry ("Forestry in the United Kingdom," p. 23), says: "From time to time suitable tracts of land come into the market and there is, in my opinion, no reason why the State should not acquire such land for re-forestation."

Though little has been done for Scotch forestry, for England and Wales there has been even less. Indeed, no beginning of practical State forestry has yet been made in England and Wales. The mountains of Wales, the Weald of Kent, the Sussex Downs, still show vestiges of their ancient wild forests; and here is the best field (near industrial centres) for the more productive modern cultivated forest. There is no reason, except national improvidence, why the Welsh mines should continue to draw the greater part of their pit props from France; or why the Weald of Kent and the Sussex Downs should not have their ancient beauties restored and become once more a source of local wealth and the joy to the Londoner that the beautiful forests near Paris are to the Parisians. Nowadays it is these accessible forests, close to industrial centres, that yield the best returns, some of them in France and Germany from 2*l.* to more than 3*l.* per acre per year of net revenue. Not very long ago it was remarked to me by a French forest expert that these forests near Paris, financially, were carrying the distant Alpine forests on their backs!

There are considerable areas of poor land within twenty or thirty miles of London that, at a reasonable expenditure, could be turned into rich forests, like the Beech forest of the Chiltern Hills. In the Highlands of Scotland, and on the Welsh mountains, there are climatic difficulties (too frequent mists, too little sun), bogland, and peat. But the south-east of England is free from these climatic troubles. It is everywhere within the climatic limits of vigorous and easy tree growth. Let us not forget that in going from the north of Scotland to the south of England we go half-way to middle Italy and Portugal, where the sun-power gives those enormous yields of timber that are the wonder of foresters in more northern climates, 20 tons of (air-dry, seasoned) wood, or 700 cu. ft. per acre per year.

There are 36,000 acres of heath, waste, or poor pasture land in Kent, Surrey, and Sussex. Labour, especially during the winter months, is abundant. Forest work is of the healthiest kind possible. Nowhere in the world do we see men of finer physique than the small farmers and villagers of Germany, who, in the winter, when other work is scarce, find their salvation in the health-giving forest.

Some 10 per cent. of the industrial population of Germany draw their livelihood from the forest, and Sir William Schlich has computed ("Forestry in the United Kingdom") that under any general scheme of State forestry for the British Isles, there would be employment for some two and a half million labourers in winter, and parts of spring and autumn. Here are far-reaching issues. Parliament has voted the money to put them to the test. And yet we allow insular prejudice to block the way to State forestry, which is the essential feature of modern scientific forestry in other countries. D. E. HUTCHINS.

Ridley, Kent, December 17.

The Recent Foraminifera of the British Islands.

I AM proposing, with my collaborator, Mr. Arthur Earland, to prepare a Monograph of the British Foraminifera, the work of Williamson being now in serious need of being brought up to date. With this object in view we are sending a preliminary schedule of questions relative to the shore sands of the British Islands to clergymen and medical men at coastal towns

and villages at intervals of a few miles all round the coast. As these gentlemen are strangers to us, I should be very glad to hear from any persons living near the coast who would be willing to receive from us a copy of the schedule and a statement of our preliminary needs. The services which we ask of observers round the coast do not involve any serious trouble, and, of course, no expenses will fall upon those who are willing to assist us.

EDWARD HERON-ALLEN.

33 Hamilton Terrace, London, N.W.

POPULAR NATURAL HISTORY.¹

(1) **M**R. SWANTON'S work on plant galls will be welcomed by a wide circle of readers, since it appeals to both the botanist and entomologist. In it the former will find a ready

cover the whole ground the author has included growths which can scarcely be regarded as galls in the accepted sense. Thus the "Reed Mace" fungus (*Epichloe typhina*) is a mere mass of mycelium outside the plant, there being no hypertrophy of the tissues. It should also be noted that the galls on alder roots are caused, not by *Frankiella alni*, but, as Miss Pratt has shown, by the bacterium *Pseudomonas radicola*, though the growths may afterwards become infested by the hyphomycete. Bottomley has shown that the similar "galls" on the roots of bog myrtle are produced by the same bacterium.

The work is illustrated by thirty-two plates, of which sixteen are reproductions of excellent colour drawings by Miss M. K. Spittal, and there are also more than thirty text figures.



A male spider near the edge of a web in which the female is at the centre. From "Spiderland."

means of identifying the gall-producers which claim his attention, whilst the latter will value the interesting details of insect life-histories. Descriptions are arranged under the headings of gall-producing insects, and chapters are also devoted to growths produced by mites, nematodes, and fungi. The remaining half of the work is occupied by a very complete catalogue of British plant galls, botanically arranged. In the endeavour to

The author is to be congratulated on a work of great utility and general excellence.

(2) To the majority of the human race spiders are repulsive creatures. They are for the most part devoid of that beauty of form and colour which often ensures a favourable reception to other members of the so-called lower creation. He would, however, be a soulless person who, after reading Mr. Ellis's work, did not regard spiders with respect if not with admiration. As shedding an interesting light on the struggle for existence it is worthy of note that some spiders which resemble ants lay but three or four eggs, whilst less defended orb weavers may lay twelve hundred.

We hesitate to cast a doubt on the wonderful reasoning powers, and especially on the great maternal affection, which the author sees so con-

¹ (1) "British Plant-galls." A Classified Text-book of Cecidology. By E. W. Swanton. With Introduction by Sir Jonathan Hutchinson, F.R.S., and sixteen coloured plates by Mary K. Spittal. Pp. xv+287. (London: Methuen and Co., Ltd., n.d.) Price 7s. 6d. net.

(2) "Spiderland." By R. A. Ellis. With Photographs and Drawings by the Author. Pp. xxii+193. (London: Cassell and Co., Ltd., 1912.) Price 3s. 6d. net.

(3) "Elementary Entomology." By E. Dwight Sanderson and Prof. C. F. Jackson. Pp. vii+372. (Boston and London: Ginn and Co., n.d.) Price 8s. 6d.

(4) "Butterflies and Moths at Home and Abroad." By H. Rowland Brown. Pp. 271+21 full-page plates. (London: T. Fisher Unwin, 1912.) Price 7s. 6d. net.